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EXAMINER
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ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
09/24/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/502,045	KUDO ET AL.	
	Examiner	Art Unit	
	NATASHA YOUNG	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-6,10-12,16 and 32-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-6,10-12,16 and 32-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4-6 and 34 rejected under 35 U.S.C. 102(b) as being anticipated by Harada et al (WO 2001/051173 A, English Equivalent US 2002/0197193 A1).

Regarding claim 4, Harada et al discloses a honeycomb filter (see Abstract) for purifying exhaust gases, comprising: a plurality of columnar porous ceramic members (11) having a partition wall (14) and plurality of through holes (15), said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste including a pore forming material which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer becomes lower than a thermal

capacity per unit volume of the porous ceramic members (see Abstract; paragraphs 0024-0030, 0038, and 0041-0043; and figures 1a-d), since ceramic fiber, ceramic powder, cement, or the like produces pores.

Regarding claims 5 and 6, Harada et al discloses a honeycomb filter wherein the thermal capacity per unit volume of the adhesive layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members (see paragraph 0030).

Regarding claim 34, Harada et al disclose a honeycomb filter further comprising a catalyst support in at least one of said columnar porous ceramic members (see paragraph 0045).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 10, 16, 37-39, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada et al (WO 2001/051173 A, English Equivalent US 2002/0197193 A1) in view of Yamamura et al (JP 2000-102709 A).

Regarding claims 10 and 37, Harada et al discloses a honeycomb filter (see Abstract) for purifying exhaust gases, comprising: a ceramic block comprising at least one columnar porous ceramic member having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side (see Abstract; paragraphs

0024-0030, 0038, and 0041-0043; and figures 1a-d); and the filter further comprising a catalyst supported in at least one of said columnar porous ceramic members (see paragraph 0045).

Harada et al does not disclose a coating material layer formed on a circumferential face of said ceramic block and formed by drying a coating material paste including a pore forming which forms a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members; and said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said coating material layer.

However, Harada et al discloses an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste including a pore forming material which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer becomes lower than a thermal capacity per unit volume of the porous ceramic members (see Abstract; paragraphs 0024-0030, 0038, and 0041-0043; and figures 1a-d).

Yamamura et al discloses coating the peripheral part of the ceramic block by the sealant which contains an inorganic fiber, an inorganic binder, an organic binder, and an inorganic particle at least (see paragraphs 15 and 22-25) resulting in a coating material layer formed on a circumferential face of said ceramic block and formed by drying a coating material paste including a pore forming which forms a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a

thermal capacity per unit volume of the porous members, since inorganic fiber and silicon carbide produces pores.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Harada et al with the teachings of Yamamura et al such that a coating material layer formed on a circumferential face of said ceramic block and formed by drying a coating material paste including a pore forming which forms a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members in order to prevent leaks (see Yamamura et al paragraph 0063).

Regarding claims 16 and 46, Harada et al discloses (claim 4) a honeycomb filter (see Abstract) for purifying exhaust gases, comprising: a plurality of columnar porous ceramic members having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste including a pore forming material which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer becomes

lower than a thermal capacity per unit volume of the porous ceramic members (see Abstract; paragraphs 0024-0030, 0038, and 0041-0043; and figures 1a-d); and the filter further comprising a catalyst supported in at least one of said columnar porous ceramic members (see paragraph 0045).

Harada et al does not disclose a coating material layer formed on a circumferential face of said ceramic block and formed by drying a coating material paste including a pore forming which forms a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members.

However, Harada et al discloses an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste including a pore forming material which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer becomes lower than a thermal capacity per unit volume of the porous ceramic members (see Abstract; paragraphs 0024-0030, 0038, and 0041-0043; and figures 1a-d).

Yamamura et al discloses coating the peripheral part of the ceramic block by the sealant which contains an inorganic fiber, an inorganic binder, an organic binder, and an inorganic particle at least (see paragraphs 15 and 22-25) resulting in a coating material layer formed on a circumferential face of said ceramic block and formed by drying a coating material paste including a pore forming which forms a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a

thermal capacity per unit volume of the porous members, since inorganic fiber and silicon carbide produces pores.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Harada et al with the teachings of Yamamura et al such that a coating material layer formed on a circumferential face of said ceramic block and formed by drying a coating material paste including a pore forming which forms a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members in order to prevent leaks (see Yamamura et al paragraph 0063).

Regarding claims 38 and 39, Harada et al discloses a honeycomb filter wherein the thermal capacity per unit volume of the adhesive layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members (see paragraph 0030).

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada et al (WO 2001/051173 A, English Equivalent US 2002/0197193 A1) in view of Veres (US 3,929,494).

Claims 32 and 33 rejected under 35 U.S.C. 103(a) as being unpatentable over Harada et al (WO 2001/051173 A, English Equivalent US 2002/0197193 A1) as applied to claim 4 above, and further in view of Veres (US 3,929,494).

Regarding claims 32 and 33, Harada et al does not disclose a honeycomb filter wherein said plurality of pores is formed by incorporating the pore forming material

which forms independent pores in said adhesive layer and wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

However, Harada et al discloses a cement adhesive, or sealant (see paragraph 0041).

Veres discloses a foaming sealant or cement (see Abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Harada et al with the teachings of Veres such that a honeycomb filter comprises a foaming sealant or cement resulting in a honeycomb filter wherein said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said adhesive layer and wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons to provide a sealant which is dimensionally stable when subject to high temperatures (see Veres Abstract).

Claims 35, 36, 40-41, and 44-45 rejected under 35 U.S.C. 103(a) as being unpatentable over Harada et al (WO 2001/051173 A, English Equivalent US 2002/0197193 A1) and Yamamura et al (JP 2000-102709 A) as applied to claim 4 above, and further in view of Veres (US 3,929,494).

Regarding claims 35, 36, 44, and 45, Harada et al does not disclose a honeycomb filter wherein said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said coating material layer and

wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

However, Harada et al discloses a cement adhesive, or sealant (see paragraph 0041).

Yamamura et al disclose that the coating material layer is made with the same material as the adhesive layer (see paragraph 0022).

Veres discloses a foaming sealant or cement (see Abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Harada et al with the teachings of Yamamura et al and Veres such that a honeycomb filter comprises a foaming sealant or cement resulting in a honeycomb filter wherein said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said coating material layer and wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons to provide a coating material layer which is dimensionally stable when subject to high temperatures (see Veres Abstract).

Regarding claims 40 and 41, Harada et al does not disclose a honeycomb filter wherein said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said adhesive layer and wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

However, Harada et al discloses a cement adhesive, or sealant (see paragraph 0041).

Veres discloses a foaming sealant or cement (see Abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Harada et al with the teachings of Veres such that a honeycomb filter comprises a foaming sealant or cement resulting in a honeycomb filter wherein said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said adhesive layer and wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons to provide a sealant which is dimensionally stable when subject to high temperatures (see Veres Abstract).

Claims 11, 12, 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada et al (WO 2001/051173 A, English Equivalent US 2002/0197193 A1) in view of Yamamura et al (JP 2000-102709 A).

Regarding claim 42 and 43, Harada et al does not disclose a honeycomb filter wherein the thermal capacity per unit volume of the coating material layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the coating material layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

However, Harada et al discloses a honeycomb filter wherein the thermal capacity per unit volume of the adhesive layer is set to 90% or less of the thermal capacity per

unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members (see paragraph 0030) and the adhesive may be ceramic fiber (see paragraph 0041).

Yamamura discloses coating material may comprise ceramic fiber (see paragraph 0022).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Harada et al with the teachings of Yamamura et al such that the thermal capacity per unit volume of the coating material layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the coating material layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members in order to prevent leaks (see Yamamura et al paragraph 0063).

Response to Arguments

Applicant's arguments filed September 14, 2010 have been fully considered but they are not persuasive.

The applicants argue that Ohno et al (WO '173) fails to teach or suggest "an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste including a pore forming material which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer such that said thermal capacity per unit volume of said adhesive layer becomes lower

than a thermal capacity per unit volume of the porous ceramic member" as cited in claim 4 (see Remarks, pages 3-4).

The examiner disagrees.

Ohno et al discloses that the paste used to form the seal layer (15) comprises 23.3 wt% of a ceramic fiber, 30.2 wt% of silicon carbide, 7 wt% of silica sol serving as inorganic binder, 0.5 wt% of carboxymethyl cellulose serving as the organic binder, and 39 wt% water, the seal layer forming paste was uniformly applied to the outer surface of the filters (F1), the filter (F1) adhered to each other, and then dried and hardened to one another (See column 9, lines 17-41). Additionally, the seal layer (15) is formed from at least an inorganic fiber, an inorganic binder, an organic binder, and inorganic particles (see column 6, lines 40-45).

The applicant discloses that the adhesive layer (14) may contain a resin such as a thermoplastic resin and a thermosetting resin, balloons made from an inorganic substance, and organic substance, and the like and these materials make it possible to control the porosity of the adhesive later (14), and consequently to adjust the thermal expansion coefficient α_L of the adhesive layer (14) (see page 18, lines 16-21) and with respect to the material for forming the adhesive layer (14), not particularly limited, for example, the above-mentioned adhesive paste containing material such as an inorganic binder, an organic binder, inorganic fibers and inorganic particles may be used (See page 24, lines 24-28) such that Ohno et al inherently discloses “an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste including a pore forming material which forms a plurality of

pores adjusting a thermal capacity per unit volume of said adhesive layer such that said thermal capacity per unit volume of said adhesive layer becomes lower than a thermal capacity per unit volume of the porous ceramic member" as cited in claim 4.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Thurs 7:30 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Y./
Examiner, Art Unit 1797

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797